

## ABSTRACT

## ELECTRONIC DEVICES AND THEIR MANUFACTURE

5        An electronic device (70) comprises a thin film transistor (TFT) (9,59),  
the TFT including a channel (16) defined in a layer of polycrystalline  
semiconductor material (10,48). The polycrystalline semiconductor material is  
produced by crystallising amorphous semiconductor material (2) using metal  
atoms (6) to promote the crystallisation process. The polycrystalline  
10 semiconductor material (10) includes an average concentration of metal atoms  
in the range  $1.3 \times 10^{18}$  to  $7.5 \times 10^{18}$  atoms/cm<sup>3</sup>. This enables polycrystalline  
semiconductor TFTs to be formed with leakage properties acceptable for use  
in active matrix displays using a metal induced crystallisation process of  
duration significantly less than previously thought necessary. Furthermore, this  
15 process duration reduction facilitates the reliable fabrication of poly-Si TFTs  
having bottom gates formed of metal.